

ABSTRACT OF THE DISCLOSURE

A power MOSFET comprises, between source and drain electrodes, a low resistive semiconductor substrate of a first conductivity type, a drift layer of the first conductivity type formed on the semiconductor substrate, a high resistive epitaxial layer of the first conductivity type formed on the drift layer, trenches formed to extend from a surface of the epitaxial layer into the drift layer, gate electrodes buried in the trenches with gate insulating films interposed between the gate electrodes and walls of the trenches, low resistive source layers of the first conductivity type formed in a surface region of the epitaxial layer adjacent to the gate insulating films, and a base layer of a second conductivity type formed in the surface region of the epitaxial layer, wherein the epitaxial layer intervening between the trenches is depleted in a case where 0 volt is applied between the source electrode and the gate electrodes.

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